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Myers Andras Sherman LLP
19900 MacArthur Blvd.
Suite 1150
Irvine, CA 92612

EXAMINER
NGUYEN BA, HOANG VU A

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 December 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This action is responsive to amendment filed December 11, 2009.

2.   Claims 1-29 are pending. Claims 1, 8 and 12 are independent claims.

Response to Amendments

3.   Per Applicant's request, Claims 1, 8 and 12 have been amended and new claims 27-29 have been added.

Response to Arguments

4.   Applicants' arguments have been fully considered but they are not persuasive. The following is an examiner's response to Applicant's arguments.

Claim 1

Applicant's essential arguments

Eldering does not teach a server-side system for evaluating television behavioral viewing data from *a plurality of users* for categorizing the data into *non-demographically classifiable category groups* as Eldering deals with individual subscribers to determine their individual demographics.

Examiner's response

The examiner respectfully disagrees with Applicant's assertion that Eldering does not teach a server-side system for evaluating behavioral viewing data from *a plurality of users* because first, Eldering system is obviously not designed for monitoring only one user and for determining which television programs or advertisements this user is interested in. Eldering is instead designed for at least more than one user (see at least p. 10, lines 31-32, "[t]he present invention includes a system for characterization subscriber<u>s</u> watching video or multimedia ..." Emphasis added by examiner. Second, without data gathered from a plurality of users and statistical and heuristic determination based upon these data, it is not reasonably conceivable how the system could determine which programs and advertisements a user from the pool of similar users is interested in.

While the Office action submitted that Eldering does not specifically teach the claimed feature *non-demographically classifiable category groups*, the Office has relied upon Hoffberg to cure the deficiency. See Office action p. 4.

Contrary to Applicant's assertion that the combination Eldering-Hoffberg would not work because it would change the principle of operation of Eldering as the profile therein could not be formed, it is respectfully noted that Eldering system, while designed for monitoring and characterizing individual user, is capable of determining television programs and advertisements of interest to user by analyzing and inferring the pertinent information using data from a plurality of users (demographic information) and heuristic rules. Therefore, it is considered that the combination of Eldering and Hoffberg is not incompatible as alleged by Applicant.

Claims 22-26

Since these claims incorporate the same features of base claim 1, the response discussed above is deemed applicable to Claims 22-26.

Claims 27 and 29

See Office action presented herein.

Claims 2-4 and 5-7

Applicant's essential arguments

Because Hendricks978 teaches that the headend characterizes and determines targeted advertising to be sent to a set-top terminal, Hendricks978 does not teach, disclose or suggest "a client-side system coupled to the server-side system and adapted to *classify a television user into at least one of the category groups based on advertising category prototypes received for the clustering engine.*"

Examiner's response

It is respectfully noted that the above feature recited in base claim 1 is considered to be suggested by Eldering (see Office action, pp. 3-4). Thus, the argument that Hendricks978 does not teach, disclose or suggest is considered moot.

Applicant's essential arguments

Hendricks978 does not teach, disclose or suggest "evaluating television behavioral viewing data from *a plurality of users and for categorizing the data into non-demographically classifiable category group.*"

Examiner's response

See response in Claim 1.

Applicant's essential arguments

Herz has nothing to do with using other user's information for determining targeted content to deliver to a set top terminal.

Examiner's response

The above feature is not recited in any of the claims 2-4 and 5-7 but appears to be in base claim 1, which is considered to be obvious over Eldering-Hoffberg, as discussed previously.

Applicant's essential arguments

Because Herz teaches reducing memory requirements at the set top terminal, Herz teaches away from "a client-side system coupled to the server-side system and adapted to classify a television user into at least one of the category groups *based on advertising category prototypes received from the clustering engine.*"

Examiner's response

The above feature is not recited in any of the claims 2-4 and 5-7 but appears to be in base claim 1, which is considered to be obvious over Eldering-Hoffberg, as discussed previously.

Applicant's essential arguments

Hendricks978 in view of Herz cannot teach, disclose or suggest that a client-side system is "adapted to classify a television user into at least one of the category groups *based on advertising category prototypes received from the clustering engine.*"

Examiner's response

The above feature is not recited in any of the claims 2-4 and 5-7 but appears to be in base claim 1, which is considered to be obvious over Eldering-Hoffberg, as discussed previously.

Applicant's essential arguments

The evaluation information that is used by Hendricks978 in determining targeted content of users is not related to "evaluating television behavioral viewing data from *a plurality of users and for categorizing the data into non-demographically classifiable category groups.*"

Examiner's response

The above feature is not recited in any of the claims 2-4 and 5-7 but appears to be in base claim 1, which is considered to be obvious over Eldering-Hoffberg, as discussed previously.

Applicant's essential arguments

Any combination of Eldering, Hendricks978 and Herz does not teach, disclose or suggest "*using a category training set for clustering the television behavioral viewing data into the category groups over a predetermined training period; generating category behavioral profiles targeting the category groups; and generating advertising category*

prototypes by removing television behavioral viewing data parameters most common

between the category behavioral profiles."

Examiner's response

The above features are addressed in the Office action presented herein.

Applicant's essential arguments

Applicant essentially submitted that by viewing the disclosures of Eldering, Hendricks978 and Herz, one cannot jump to the conclusion of obviousness without impermissible hindsight and that the assertions made in the Office action that leads to a conclusion of obviousness are not explicit and the basic requirements of an articulated rationale under MPEP 2142 cannot be found.

Examiner's response

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this instance, the analysis and conclusion articulated in the Office action at pp. 3-4 does not appear to be based on knowledge gleaned from the Applicant's disclosure.

Claims 8-10

Applicant's essential arguments

Hendricks785 does not teach "contextual transition behaviors profiling" because the clues such as programs watched and time periods of television viewing as described in Hendricks785, 29:26-43 are not equivalent to the "contextual *transition* behaviors."

Examiner's response

      Hendricks785 29:26-43 describes that subscribers' behavioral pattern information is saved and information, such as programs watched and time periods of television viewing (it should be noted that the information is not limited to just the programs watched and time periods of TV viewing because Hendricks785 uses "such as") are analyzed as necessary to develop a profile of the viewer. If there are more than one programs watched being saved, it should be construed that there were channel changes so that the desired programs could be watched or recorded. Thus, channel changes are transition behavior.

Applicant's essential arguments

      Hendricks785 does not teach, disclose or suggest "*based on advertising non-demographically classifiable category prototypes received from the head-end side*" and "*advertising non-demographically classifiable category prototypes received from the head-end side.*"

Examiner's response

      The above features are considered anticipated by/obvious over Hoffberg and not over Hendricks785. See Office action presented herein.

Applicant's essential arguments

      Eldering does not teach or suggest "a program distributing device at the head-end side for providing to the user the program content in accordance with the user profile, wherein *a user is classified at the client-side into at least one category group based on advertising non-demographically classifiable category prototypes received from the head-end side.*"

Examiner's response

      Contrary to Applicant's assertion, Eldering does teach the above feature at p. 15, lines 24-27 and p. 10, lines 7-14. See Office action presented herein.

Applicant's essential arguments

Hendricks785, Alexander, Eldering and Hoffberg combined does not teach or suggest *"the advertising non-demographically classifiable category prototypes are generated by removing television viewing data parameters most common between category behavioral profiles formed at the head-end side by using a category training set for clustering television behavioral viewing data from a plurality of users into-demographically classifiable category groups over a predetermined training period."*

Examiner's response

Contrary to Applicant's assertion, the above features are disclosed in Eldering; see at least FIG. 1, category group 110 and p. 25, lines 16—p. 26, lines 4; FIGs. 6-7; the claimed *training set* is deemed disclosed in Eldering—heuristic rules engine 160—or Hoffberg as a recognition algorithm that may be adaptive and learning and implemented using a neural network processor--see Hoffberg, [0371]). See Office action presented herein.

Applicant's essential arguments

Assertions made in the Office action on pp. 6-9 that lead to a conclusion of obviousness are not explicit and the basic requirements of an articulated rationale under MPEP 2142 cannot be found.

Examiner's response

Contrary to Application' s assertion, it is respectfully submitted that every time another reference is combined with the initial reference a motivation is being explicitly articulated. See Office action presented herein.

Claim 11

Since Applicant essentially submitted the same arguments as those presented in claim 8, the same response as the one set forth in claim 8 is deemed applicable to Applicant's arguments in claim 11.

Claims 12, 13, 15-18 and 21

Since Applicant's arguments with respect to Claim 12 are the same as those presented for Claim 1, the same response as set forth in claim 1 is also applicable to Applicant's arguments with respect to Claim 12.

Claims 14 and 19

Since Applicant's arguments with respect to Claims 14 and 19 are the same as those presented for Claim 12 and 1, the same response as set forth in claim 12 and 1 is also applicable to Applicant's arguments with respect to Claims 14 and 19.

Claim 20

Since Applicant's arguments with respect to Claim 20 are the same as those presented for Claim 1, the same response as set forth in claim 1 is also applicable to Applicant's arguments with respect to Claim 20.

Applicant's essential arguments

[T]he fact that the examiner has used four (4) references to arrive at the claimed invention without properly supplying a motivation to combine the references, and the fact that the references are combined despite that Rabiner is directed to applications in speech recognition and Eldering is directed to determining a demographic group of a single user, are strong indications that the examiner , aided with the present application as a road map, has used impermissible hindsight reconstruction to pick and choose among isolated disclosures in the prior art.

Examiner's response

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the

applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392,

170 USPQ 209 (CCPA 1971). In this instance, the individual features of the claims are

considered to be commonly known in the art and thus within the level of ordinary skill in the art

at the time the claimed invention was made. Since the knowledge of these features does not

include knowledge gleaned only from the applicant's disclosure, the combination of the

references is considered proper.

      In response to applicant's argument that the examiner has combined four (4) references,

reliance on a large number of references in a rejection does not, without more, weigh against the

obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed.

Cir. 1991).

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making
> and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
> contemplated by the inventor of carrying out his invention.

6.   Claims 1, 8 and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply

with the written description requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to reasonably convey to one skilled in the relevant

art that the inventor(s), at the time the application was filed, had possession of the claimed

invention. The following features are nowhere found in the specification: *generating advertising*

category prototypes by removing television behavioral viewing data parameters most common

between the category behavioral profiles.

Claim Rejections – 35 USC § 103

7.   The following is a quotation of the 35 U.S.C. § 103(a) which form the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth
> in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not negatived by the manner in which the invention was made.

8.   Claims 1 and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/33160 by Charles Eldering ("Eldering") in view of U.S. Patent Application Publication No. 2008/0040749 by Hoffberg et al. ("Hoffberg").

It should be noted that hereinafter the use of the clause "see at least" should be interpreted that the cited portions that follow the clause are not the only portions that are considered to be relevant. Should Applicant find that the cited portions are not relevant, other portions of the disclosure of the prior art reference will be provided as additional evidence and/or context to the relevancy of the previously cited portions. Since the evidence is from the same reference, the introduction of the additional evidence in response to Applicant's arguments should not therefore be considered to be that of new grounds of rejection.

Claim 1

Eldering discloses at least

a server-side system (see at least FIG. 1, element 100) *for evaluating television behavioral viewing data from a plurality of users and for categorizing the data into category groups* (see at least FIG. 1, Subscriber Characterizing System);

a clustering engine included in the server-side system for receiving the television behavioral viewing data, processing the television behavioral viewing data, and generating user profiles targeting the category groups (see at least FIG. 1, Subscriber Characterizing System);

a server-side system *adapted to classify a user into at least one of the category groups based on advertising category prototypes* (e.g., p. 15, lines 24-27; p. 10, lines7-14) *received from the clustering engine* (see at least p. 15, line 16 – p. 16, line 31; p. 19, lines 17-22; p. 20, lines 13-25; the claimed category groups are interpreted to be similar to Eldering's demographic groups in FIG. 10B);

a contextual behavioral profiling agent for deriving profiling information related to a television user's viewing behavior with content and usage-related preferences (p. 10, line 31 – p. 11, line 10; p. 11, lines 18 – p. 12, line 9, e.g., "subscriber profile vector" at p. 15, line 28); *and*

> *a behavioral model database for storing in the system the profiling information*
> *derived by the profiling agent* (p. 12, lines 10-14).

While the classifying of user into category group (e.g., Eldering's program /advertisement characteristics vector), the contextual behavioral profiling agent (e.g., Eldering's subscriber profile), the behavioral model database (e.g., storage medium) are described for a client-server system where most of the above components are located on the server side, Eldering also provides for a set up where the system can be run locally in a television set-top (see at least Abstract and p. 36, line 5 -- p. 38, line 38).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Eldering system so that the subscriber characterization system (e.g., the claimed evaluating of behavioral viewing data, the group categorizing and the clustering engine) is located on the server side and the program/advertisement characteristic vector, subscriber profile, the resulting characterization information (e.g., the claimed classifying agent, the contextual behavioral profiling agent, the behavioral model database) are located on the client-side. One skilled in the art would have been motivated to implement such a modification in order to allow subscriber characterization information to be stored locally at a subscriber location and directly controlled by the subscriber (Eldering; p. 12, lines 10-17).

Eldering does not specifically disclose that categorizing data into *non-demographically classifiable* category groups as recited in the first limitation of Claim 1.

However, in an analogous art, Hoffberg discloses that stored information regarding prior sessions, current state of the machine, etc. can be used to predict the most probable next action to be taken by the user (see at least 0526-0527]; [0370-0373]). Because of the dependence of the information upon a particular user and how s/he currently and previously uses the information, the information are not standard demographic information and thus cannot be classified according to standard demographic group category. Furthermore, the information can be sent to a server-side system, as a matter of design choice, for storing and being analyzed thereon.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the non-demographically classifiable data as described in Hoffberg in

Eldering because the use of these data would improve the accuracy of prediction of user's preferences.

Eldering-Hoffberg further discloses:

using a category training set for clustering the television behavioral viewing data into the category groups over a predetermined training period (Eldering; see at least FIG. 1, category group 110 and p. 25, lines 16—p. 26, lines 4; FIGs. 6-7; the claimed *training set* is deemed disclosed in Eldering—heuristic rules engine 160—or Hoffberg as a recognition algorithm that may be adaptive and learning and imolemented using a neural network processor--see Hoffberg, [0371])*; and*

generating advertising category prototypes by removing television behavioral viewing data parameters most common between the category behavioral profiles (Hoffberg; see at least [0371]; e.g., the claimed removing of data parameters most common between category behavioral profiles step may be implemented using Eldering's heuristic rules 160 or Hoffberg's feature that allows characteristics of program materials which is not desired—[0371]).

Claim 22

The rejection of base claim 1 is incorporated. Eldering-Hoffberg further discloses *wherein the television behavioral viewing data from the plurality of users is used to create the category groups* (Eldering; see at least p. 10, last paragraph and p.11, 1st paragraph and use of heuristic rules 160 in FIG. 1 being adapted to store the non-demographically data taught in Hoffberg to create category groups).

Claim 23

The rejection of base claim 1 and intervening claim 22 is incorporated. Eldering-Hoffberg further discloses *wherein the profiling information is used to determine a category group to associate a user with* (Eldering; see at least FIG. 1, elements 190,192).

Claim 24

The rejection of base claim 1 is incorporated. Eldering-Hoffberg further discloses *wherein the television behavioral viewing data includes contextual transition data* (Eldering; see

at least p. 10, last paragraph; p. 11, 1st paragraph; p. 16, 2nd and 3rd paragraphs; p. 20, lines 1-25; p. 25, last paragraph).

Claim 25

The rejections of the base claim 1 and intervening claim 24 are incorporated. Eldering-Hoffberg further discloses *wherein the contextual transition data is based on day of week and time of day* ((Eldering; see at least p. 10, last paragraph; p. 11, 1st paragraph; p. 16, 2nd and 3rd paragraphs; p. 20, lines 1-25; p. 25, last paragraph).

Claim 26

The rejections of the base claim 1 and intervening claim 24 are incorporated. Eldering-Hoffberg further discloses *wherein the contextual transition data is based on a previous type of television program* (Eldering; see at least p. 10, last paragraph; p. 11, 1st paragraph; p. 16, 2nd and 3rd paragraphs; p. 20, lines 1-25; p. 25, last paragraph).

Claim 27

The rejection of base claim 1 is incorporated. Eldering-Hoffberg further discloses *wherein the category training set is initially a preexisting collection of advertising categories* (Eldering; see at least p. 10, lines 7-30, since Eldering teaches that advertisement related information is being retrieved from the server side, it is inferred that the ad information are preexisting and stored at the server side; p. 15, lines 24-27).

Claim 28

The rejection of base claim 1 is incorporated. Eldering-Hoffberg further discloses *wherein the advertising category prototypes are formed during the training period* (Eldering; see at least p.10, line 7—p. 11, line 10, in order to determine the percentage of advertisement viewed by a subscriber, it is necessary to characterize the viewing pattern of the subscriber over a period of time—e.g., monitoring [user's] detailed selection choices including the time duration of their viewing, etc.)

Claim 29

The rejection of base claim 1 is incorporated. Eldering-Hoffberg further discloses *wherein the training period is continuously adjusted* (Eldering; see at least p.10, line 7—p. 11, line 10, since the monitoring is based on time duration of a user's viewing, which varies with time, the training period has to be continuously adjusted).

9.   Claims 2-4 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/33160 by Charles Eldering ("Eldering") in view of U.S. Patent Application Publication No. 2008/0040749 by Hoffberg et al. ("Hoffberg") and further in view of U.S. Patent No. 6,738,978 to Hendricks ("Hendricks978") and of U.S. Patent No. 6,088,722 to Herz et al. ("Herz'722").

Claims 2-3 and 5-7

The rejection of base claim is incorporated. For features recited in Claims 2-3 and 5-7, see rejections and examiner's response to Applicant's arguments in previous Office actions.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Eldering-Hoffberg with Hendricks978-Herz722 because the combination would improve customer targeting advertisement.

Claim 4

The rejections of the base claim 1 and intervening claim 2 are incorporated. Eldering-Hoffberg-Hendricks978-Herz722 further discloses *wherein said clustering engine is programmed to generalize user profiles in a targeted category group into an aggregation representative of all dimensions most strongly in common for the targeted group and all dimensions most unique across several of the targeted groups* (Eldering; see at least FIG. 10B).

10.   Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,798,785 to Hendricks ("Hendricks785") in view of U.S. Patent No. 6,177,931 to Alexander and further in view of WO 00/33160 by Charles Eldering ("Eldering") and further in view of U.S. Patent Application Publication No. 2008/0040749 by Hoffberg et al. ("Hoffberg").

Claim 8

Hendricks785 discloses at least *in an interactive display system* (see at least FIG. 1)
having a head-end side for distributing program content (see at least FIG. 1, element 208) *that
has been pruned for a category, and a client side* (see at least FIG. 1, element 202) *receiving the
program content and selectively displaying the program content in accordance with the selection
of a user*(see at least 4:45-48), *a preference engine for determining a preferred program content
for the user* (see at least 29:26-28 teaching microprocessor element 602), *comprising:*

> *a user monitoring device* (see at least 29:26-28 teaching microprocessor element
> 602) *receiving the pruned program content at the client side for recording contextual
> transition behaviors profiling the user to continually build a user profile of preferences
> and contextual transition behaviors associated with the user* (see at least 29:33-43
> teaching recording contextual behaviors and storing them in memory and learning a
> subscriber's favorite channels).

Hendricks785 does not specifically disclose:

> *a program distributing service at the head-end side for providing to the user the
> program content in accordance with the user profile.*

However, in an analogous art, Alexander teaches a device (5:20-55; a device which
would make up a cable box) for providing to the one or more users the program content in
accordance with the user's demographic information and with the contextual transition behavior
profile (see at least 30:59-67 teaching automatically tuning to a channel because of the user
profile and 28:10-53 teaching the EPG recording demographic and contextual transition behavior
profile information).

It would have been obvious to a person having ordinary skill in the art at the time the
invention was made to combine the user monitoring system of Hendricks785 with the user
preference system of Alexander for the purpose of customizing the EPG to provide custom
advertising to the viewer based on the user profile (Alexander; 2:17-20).

The combination Hendricks785-Alexander does not specifically disclose the remaining
feature of the claim.

However, in an analogous art, Eldering discloses:

wherein a user is classified at the client-side into at least one category group
based on category prototypes received from the head-end side (e.g., p. 15, lines 24-27; p.
10, lines7-14) *received from the clustering engine* (see at least p. 15, line 16 – p. 16, line
31; p. 19, lines 17-22; p. 20, lines 13-25; the claimed category groups are interpreted to
be similar to Eldering's demographic groups in FIG. 10B).

While the classifying of user into category group (e.g., Eldering's program
/advertisement characteristics vector) is described for a client-server system where most of the
above components are located on the server side, Eldering also provides for a set up where the
system can be run locally in a television set-top (see at least Abstract and p. 36, line 5 -- p. 38,
line 38).

It would have been obvious to a person having ordinary skill in the art at the time the
invention was made to modify Eldering system so that the subscriber characterization system is
located on the server side and the program/advertisement characteristic vector, subscriber profile,
the resulting characterization information are located on the client-side. One skilled in the art
would have been motivated to implement such a modification in order to allow subscriber
characterization information to be stored locally at a subscriber location and directly controlled
by the subscriber (Eldering; p. 12, lines 10-17).

Furthermore and in response to Applicant's arguments that the claimed *contextual*
transition behavior profiling is absent in Hendricks795-Alexander, the Office respectfully
disagrees with this assertion and while it is maintained that the claimed feature is obvious over
the combination, the Office further cites the following portion of Eldering as being relevant to
the claimed feature (p. 10, line 31 – p. 11, line 10; p. 11, lines 18 – p. 12, line 9, e.g., "subscriber
profile vector" at p. 15, line 28).

Hendricks785-Alexander-Eldering does not specifically disclose that *a user is classified*
at the client-side into at least one category group based on advertising non-demographically
classifiable category prototypes received from the head-end side as recited in the claim.

However, in an analogous art, Hoffberg discloses that stored information regarding prior
sessions, current state of the machine, etc. can be used to predict the most probable next action to
be taken by the user (see at least 0526-0527]; [0370-0373]). Because of the dependence of the
information upon a particular user and how s/he currently and previously uses the information,

the information are not standard demographic information and thus cannot be classified according to standard demographic group category. Furthermore, the information can be sent to a server-side system, as a matter of design choice, for storing and being analyzed thereon.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the non-demographically classifiable data as described in Hoffberg in Hendricks785-Alexander-Eldering because the use of these data would improve the accuracy of prediction of user's preferences.

Hendricks785-Alexander-Eldering-Hoffberg further discloses:

> *wherein the advertising non-demographically classifiable category prototypes are generated by removing television viewing data parameters most common between category behavioral profiles formed at the head-end side* (Hoffberg; see at least [0371]; e.g., the claimed removing of data parameters most common between category behavioral profiles step may be implemented using Eldering's heuristic rules 160 or Hoffberg's feature that allows characteristics of program materials which is not desired—[0371]) *by using a category training set for clustering television behavioral viewing data from a plurality of users into non-demographically classifiable category groups over a predetermined training period* (Eldering; see at least FIG. 1, category group 110 and p. 25, lines 16—p. 26, lines 4; FIGs. 6-7; the claimed *training set* is deemed disclosed in Eldering—heuristic rules engine 160—or Hoffberg as a recognition algorithm that may be adaptive and learning and implemented using a neural network processor--see Hoffberg, [0371]).

Claims 9-10

The rejection of the base claim 8 is incorporated. For features recited in Claims 9-10, see rejections and examiner's response to Applicant's arguments in previous Office actions.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Hendricks785-Alexander-Eldering with Hoffberg because the combination would improve customer targeting advertisement.

11.   Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,798,785 to Hendricks ("Hendricks785") in view of U.S. Patent No. 6,177,931 to Alexander and further in view of WO 00/33160 by Charles Eldering ("Eldering"), further in view of U.S. Patent Application Publication No. 2008/0040749 by Hoffberg et al. ("Hoffberg") and further in view of U.S. Patent No. 5,801,747 to Bedard.

Claim 11

See rejection in Claim 8 above and in previous Office actions.

12.   Claims 12, 13, 15-18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,738,978 to Hendricks ("Hendricks978") in view of WO 00/33160 by Charles Eldering ("Eldering").

Claim 12

Hendricks978 discloses at least *in a program content delivery system* (see at least FIG. 5) *having a head-end side* (see at least FIG. 1, element 208) *and a client side* (see at least FIG. 1, element 220)*, a system for targeting program delivery* (see at least 35:64-65)*, comprising:*

a central data system at the head-end side which receives viewing information from a plurality of users (see at least 36:17-23 and FIG. 1, element 214 teaching a network controller receiving and storing information which is located at the head end) *selected from the group consisting of watch data* (see at least 36:29-35)*, watch start time data, watch duration data, and watch channel data, demographic information describing a program user* (see at least 36:17-23)*, and electronic program guide information with metadata describing a program content;*

a demographic cluster knowledge base acquirer receiving from the client side behavioral data of the user (see at least 36:14-23 teaching receiving demographic data to generate a matrix, the collected data from groups of subscribers being considered as clusters) *, the knowledge base acquirer outputting a knowledge base based on the viewing information in the form of a transition matrix with weight sets* (see at least 78:13-17 teaching outputting a matrix and 71:3-10 teaching transmitting weighted information

to the set top terminals and 37:1-5), *the transition matrix used for predicting a particular category group of a plurality of classifiable category groups for classifying the user based on the behavioral data of the user* (see at least 37:1-5 teaching selecting a group for a user and 36:18-24 teaching the matrices being developed using demographic information so that the selecting of a user by the matrix is using demographic data to select a group for the user); *and*

a *program content generating module* (see at least FIG. 17, element 428 generating program content) *disposed at the head-end side and providing to the client side streams of program content based on the predicted category group of the user* (see at least 37:1-5 teaching selecting a group for a user and 36:18-24 teaching the matrices being developing using demographic data to select a group for the user and 38:56-59 teaching three methods for streaming/delivering advertisements to the user). Hendricks978 does not specifically disclose the remaining feature of the claim. However, in an analogous art, Eldering discloses:

wherein a user is classified into at least one category group based on advertising category prototypes transmitted from the head-end side (e.g., p. 15, lines 24-27; p. 10, lines7-14) *received from the clustering engine* (see at least p. 15, line 16 – p. 16, line 31; p. 19, lines 17-22; p. 20, lines 13-25; the claimed category groups are interpreted to be similar to Eldering's demographic groups in FIG. 10B).

While the classifying of user into category group (e.g., Eldering's program /advertisement characteristics vector) is described for a client-server system where most of the above components are located on the server side, Eldering also provides for a set up where the system can be run locally in a television set-top (see at least Abstract and p. 36, line 5 -- p. 38, line 38).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Eldering system so that the subscriber characterization system is located on the server side and the program/advertisement characteristic vector, subscriber profile, the resulting characterization information are located on the client-side. One skilled in the art would have been motivated to implement such a modification in order to allow subscriber

characterization information to be stored locally at a subscriber location and directly controlled by the subscriber (Eldering; p. 12, lines 10-17).

Furthermore and in response to Applicant's arguments that the claimed *transition matrix* is absent in Hendricks978, the Office respectfully disagrees with this assertion and while it is maintained that the claimed feature is obvious over the combination, the Office further cites the following portion of Eldering as being relevant to the claimed feature (see at least FIG. 10B; p. 10, line 31 – p. 11, line 10; p. 11, lines 18 – p. 12, line 9, e.g., "subscriber profile vector" at p. 15, line 28).

wherein the advertising category prototypes are generated at the head-end side by removing television viewing data parameters most common between category behavioral profiles formed at the head-end side (Hoffberg; see at least [0371]; e.g., the claimed removing of data parameters most common between category behavioral profiles step may be implemented using Eldering's heuristic rules 160 or Hoffberg's feature that allows characteristics of program materials which is not desired—[0371]) *by using a category training set for clustering the viewing information from the plurality of classifiable category groups over a predetermined training period* (Eldering; see at least FIG. 1, category group 110 and p. 25, lines 16—p. 26, lines 4; FIGs. 6-7; the claimed *training set* is deemed disclosed in Eldering—heuristic rules engine 160—or Hoffberg as a recognition algorithm that may be adaptive and learning and imolemented using a neural network processor--see Hoffberg, [0371]).

Claims 13, 15, 16, 17, 18 and 21

The rejection of base claim 12 is incorporated. For features recited in Claims 13, 15, 16, 17, 18 and 21, see above rejections and previous Office actions.

13.   Claims 14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,738,978 to Hendricks ("Hendricks978") in view of WO 00/33160 by Charles Eldering ("Eldering"), as applied to base claim 12, and further in view of U.S. Patent No. 6,088,722 to Herz.

Claim 14

The combination Hendricks978-Eldering does not specifically disclose the feature recited in Claim 14.

However, in an analogous art, Herz discloses *wherein said demographic cluster knowledge base acquirer is based on a hidden Markov model* (48:67 and 29:1-4).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use Herz in the combination Hendricks978-Eldering for the purpose of anticipating user requests so data can be downloaded in advance (Herz; 48:67 and 49:1-4).

Claim 19

The combination Hendricks978-Eldering does not specifically disclose the feature recited in Claim 19.

However, in an analogous art, Herz teaches *wherein the transition matrix is a two-dimensional matrix with transitions from television channels in normal form to television channels in temporal form* (see at least 48:67; 49:1-5 teaching a transition matrix and by definition a matrix has rows and columns thus at least two dimensions; the matrix is temporal because as information is updated the matrix would change).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the Markov model as taught in Herz in the combination Hendricks978-Eldering for the purpose of anticipating user requests so data can be downloaded in advance (see at least 48:67 - 49:4).

14.   Claim 20 is are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,738,978 to Hendricks ("Hendricks978") in view of WO 00/33160 by Charles Eldering ("Eldering"), as applied to base claim 12, further in view of U.S. Patent No. 6,088,722 to Herz, as applied to Claim 14 and further in view of A tutorial on Hidden Markov Models and Selected Applications in Speech Recognition by Rabiner et al. ("Rabiner").

Claim 20

The combination Hendricks978-Eldering further discloses:

> *wherein said demographic cluster knowledge base acquirer is configured to parameterize the user's behavior with a double pseudo hidden process* (Hendricks978; see at least columns 18-23 wherein multiple sub matrixes are being analyzed from the database and this analysis is done at the network controller, so it is hidden from the subscriber), *and to define a low-level statistical state machine with the active behavioral cluster* (Hendricks978; see at least 36:18-23) *and top-level statistical state machine with active behavioral clusters and an interaction between the active behavioral clusters* (Hendricks978; 36:24-28 teaching combining the matrixes).

The combination Hendricks978-Eldering does not specifically disclose that the double pseudo process is *a Markov process*.

However, in an analogous art, Herz teaches a Markov process (see at least 48:67 – 49:7).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the Markov model in the combination Hendricks978-Eldering of the purpose of anticipating user requests so data can be downloaded in advance (48:67 – 49:4).

The combination Hendricks978-Eldering-Herz does not specifically disclose that the Markov process is *random*.

However, in an analogous art, Rabiner teaches random processing (p. 257, second column paragraph starting with "[t]hese are …" which teaches statistical modeling with random processing in relation to hidden Markov processes).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use Rabiner teachings in the combination Hendricks978-Eldering-Herz for the purpose of using a random sample of the data to avoid excessive processing and calculations.

Conclusion

15.   **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire

THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

16.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang-Vu "Antony" Nguyen-Ba whose telephone number is (571) 272-3701. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:30 pm.

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, John Miller can be reached at (571) 272-7353.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2400 Group receptionist (571) 272-2400.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

/Hoang-Vu Antony Nguyen-Ba/
Primary Examiner, Art Unit 2421
February 26, 2010